

<title>

DEVELOPING NOTIONS OF PERSONAL & SOCIAL PLACE WITH LOCATION-AWARE, MULTIMEDIA MOBILE-PHONES.

<abstract>

The concept of 'place' is being contested and re-valued in a changing social and technological environment, particularly as a result of developments in personal telecommunications. A mobile information society has evolved which has allowed communication between persons, and also computers, to be 'exchanged' regardless, or in spite, of location. Latest technology in mobile devices will potentially allow an increasing proportion of people to augment media - image and audio - to everyday locations, creating a dynamic personal and collective information space.

This doctorate proposal aims to explore the creative potential of forthcoming technologies in mobile and handheld devices - namely multimedia messaging services (MMS) and accurate location-aware positioning - to construct personal and social 'augmented' places. It will engage with discourses of 'place' from fields such as archaeology, social geography, architecture, politics, and media theory to assist in constructing a framework of application and interpretation of multimedia - and particularly audio - augmented everyday locations, both urban and natural landscape. Such a practice would allow everyday device users to develop personal relationships with certain locations for mnemonic, creative, social or critical purposes.

A prototype system will be developed, in conjunction with other parties, for the purpose of sending and receiving location (context)-aware media using MMS, via mobile or web-based interfaces. The conceptual focus of the system will be directed to facilitate person-place and place-person data exchange. The system will then be tested and developed to support public art development workshops. Active workshops with a variety of groups, raising awareness of creative and poetic usage, will conclude the research period and form the basis of an evaluation process.

<keywords>

PLACE; PERSONAL; SOCIAL; AUDIO-AUGMENTED ENVIRONMENTS; MOBILE DEVICES;
MULTIMEDIA MOBILE MESSAGING; LOCATION-AWARE SERVICES; ARTIST PROJECT AS
RESEARCH; PUBLIC-ART DEVELOPMENT WORKSHOPS

<motivation/background>

The concept of 'place', generally understood as a locality with a distinct culture, or space invested with human meaning, is argued to be in a process of disruption or re-evaluation [Massey94]. The relative speed or intensity of space/time compression and convergence, globalisation, telecommunication advances, and mass migration, particularly in the developed world, has meant that the meaning of place has been claimed to be increasingly superseded by an emerging space of 'flows' and social relations [Castel89]. As part of this trend, rapid rise in ownership of mobile phones, and advancing usability for cost in wireless handheld computers, has meant that it is possible for many to send and receive voice calls, text messages, and have Internet access regardless of location. This has allowed social relations to be further removed from place, creating a 'mobile information society'.

Multimedia Messaging Services (MMS), planned to be a mass-market service within the following couple of years, will allow multimedia to be delivered and sent between mobile devices, from mobile to Internet, and vice-versa, in any combination. Key developers propose the service to be "location-independent, [the] total communication experience" [NokiaM01]. With a variety of options - image capture, picture download, short movie sequences, voice, audio capture or stream - MMS, in its full capacity, offers a field of media that may be used creatively beyond the communication 'exchange' purported by mobile operators and their critics [Myerso01].

Following onwards from the commercial and popular success of Short Message Services (SMS), the MMS system is *user-produced-content* driven. Most promotional material so far has, understandably due to concerns of 'over-hype' and technical immaturity, highlighted the ability to send peer-to-peer content between MMS enabled phones. Further, possibly due to its anticipated income revenue, industry developers have highlighted the advertising, commercial and entertainment services that could be ripe for location-aware content, when linked with positioning technology [Niedzw01]. But little has been mentioned of the reverse: production of user-content linked to location. Likewise, there has been minimal discussion of what content may be produced, and for what reason, other than: 'to show what you mean'; to send electronic 'postcards'; ubiquitously 'to keep in touch'; to incite emotion [Poropu01]. Actually, the first Nokia MMS-enabled phone (model 7650 - to be released in the later quarter of 2002) includes a digital camera, lending weight with Nokia's claim to the "emphasis in personal communication...shifting from ears to eyes" [NokiaM01].

Meanwhile, computer science research [Espino01] and independent commentators [Headmp00] interested in social application of technology, have argued that information content (images, text, etc.) created by everyday users of mobile devices and augmented to locations, using geographical positioning techniques (GPS, cellular grids etc.), will generate a social and dynamic information space. Indeed, there are a group of past and ongoing art/technology projects that suggest the combined potential of the afore-mentioned technology developments and also the approach proposed through this plan:

Firstly 'Placeholder', a seminal VR project commissioned by Banff Centre of Arts, Canada, took as inspiration the *genius loci*, or 'spirit of a place', to engage with concepts of landscape and narrative in virtual environments. Using certain location metaphors and motifs, focusing on auditory rather than visual cues, users of the environment could experience and 'mark' narrative activity facilitated by 'placemark' motifs - fragments of narrative are constituted as 'voice-objects' which can be 'emptied' and 'filled' (i.e. spoken word recorded), and/or moved around the virtual environment space. Hence the "the VR artist[s] does not bathe the participant in content: she invites the participant to produce content by constructing meanings, to experience the pleasure of embodied imagination" [Laurel93]. It should be acknowledged, in review of the following project examples, how perceptive these artists were, in that medium - VR - allowing the (sonic) narrative experience of the users to be dictated by the users in real-time.

Another artist project curated at Banff - 'Traces' presented in 1999 [Rueb99] - combined GPS technology and sound samples to create a 'memorial environmental sound installation' that is site-specific to the network of hiking trails near the Burgess Shale fossil beds in Yoho National Park, British Columbia. As the interactor (wearing open-headphones and a backpack containing laptop & GPS system) walks through the area different poems and musical or song compositions fade in and out according to location. Engaging with themes of memorial, death and loss, the sound content was initially gathered as international contributions from writers, artists and musicians. Spatially the audio content (and context) was fixed, regardless of user agency. Similar in inspiration to the 'Placeholder' VR project, 'Traces' offers a poetic reflection on augmented outdoor environments and considers the mnemonic usage of such a system. The artist Teri Rueb has continued to explore such agendas or systems, and is currently at the beginning of another audio-augmented outdoor art project, this time based in inner-city Baltimore, using the current technologies of MP3 and portable computing [Rueb02]. This author sees parity with her aims and objectives for 'Listening to Baltimore', although project communication seems to dictate that the sound content, although gathered through community interaction, will be produced or curated by the artist. This proposed research plan aims to develop art workshops, which nurtures public engagement and creativity in the technology system, rather than creating art products as such.

Heading towards the realm of computer science research, several audio-augmented environment projects have informed or pre-dated the aims of this proposal. Initially, 'Guided by Voices: an audio augmented reality system' [Lyons01] considers a lightweight and inexpensive infrastructure, using wearable technology and an indoor RF (radio frequency) location system, to facilitate game-play and narrative potential in augmented environments. While the infrastructure and technological problem solving is interesting, the imagined narrative scenario, and hence usage, is frankly clichéd, involving fantasy RPG elements. Meanwhile, beginning the same year, the LISTEN project [Eckel01] proposes another audio-augmented environment system, whereby the interface is solely the experience of walking through an interior space, wearing headphones, in which 3D-spatialised sound is experienced (in real-time) as the result of the user's movement and context. This 3-year research programme aims towards an arts/museum application -

augmenting gallery space with information or as an artwork in itself. In contrast to [Lyons01], the LISTEN consortium has, from the start, strong ambition to develop the system, in consultation with artists and musicians, to consider the potential of the system as a medium for creativity and experimentation. Although the software architecture is essentially developed also as an indoor system, it presents similar content issues as may be found in an outdoor system, for example [Rueb02]. Explicitly, the LISTEN project presumes that the (sound) content is created or presented by the artist, curator, producer etc. and not the interactors, i.e. the wearers of the headphones, the users of the system. This social shortcoming acts as motivation in the proposed case set forward henceforth, however, it is hoped that close dialogue will be maintained with the LISTEN project development to inform sound-related content and system issues.

Lastly, the following details the contribution of the Computer-Related Design Research Dept. at the Royal College of Art, London to the 'FLIRT: Flexible Information and Recreation for Mobile Users' project [Raby00]. This collaborative project (including Phillips Research Labs, Infogrames Entertainment Ltd, and Helsinki Telephone Corporation), as the name suggests, aimed to "explore how our inhabitation of an environment saturated by information and communications technology can offer new possibilities for the way we live our lives". Very much engaging within the limitations of the technology at the time, the research team highlighted that the "contrast between the *Hi-Res* richness of the real world and the *Lo-Res* of the handheld display is particularly acute...[using] the screen as a trigger for the imagination – of both the image of the city people carry in their heads, and their capacity for fantasy and daydreaming". Several quirky prototype applications were developed which engaged with notions of fun and spontaneity, anonymous communities and 'roving' information. All related, and responded to the users location, in conjunction to the cellular grid overlying the (Helsinki) city centre. A result of the mobile technology of the time, each application was grounded in visual communication. Regardless, certain findings and approaches have informed, in-fact, confirmed this author's research aims: Described as the 'space in between', the design team acknowledged the gap between reality and virtual - "A space we call dreaming. A space that began to blur fiction and reality. A space of imagination played out in the city street" [Raby00]. Other particularly interesting ideas raised were: The referencing of 'locality' rather than position; exploring the communications environment that "sustains itself through a kind of anonymous sociability"; the proposition of social commentary associated with augmented territory.

The next few paragraphs will summarise this author's personal artistic and research background, as a guide of explanation to personal motivation.

A fine art graduate, specialising in printmaking, Paterson claims that this initial training in 'process' through concept and material, has latterly informed his approach and application to digital (computer-aided) media. However, more interested in graphic expression and politic than conceptual 'art-speak', the resultant Degree printmaking artwork was influentially mirrored by a dissertation on national identity politics, entitled 'Raising Flags of Difference'. In the following years the processes involved changed to digital imaging and animation, and the content and conceptual focus matured, shifting to a more intimate reflection of personal relationship

between landscape and identity. This conceptual move was consolidated and confirmed during a 5-month artistic study in Finland, exploring themes of isolation, integration, nature and networks. This work manifested itself as a solo exhibition of digital animations at Jyväskylä Centre of Printmaking, participation within the Valon Voimat Festival in Helsinki, 1998, and an (unpublished) essay written for the Peter Kirk Memorial Trust. More recently, within the last couple of years, engagement has taken form as poetry, relating and developing textual sketches imagining augmentation of place with memory.

Upon return to Scotland, beginning in 1999 as a continuation of the personal *Isolation/Integration* theme explored in Finland, Paterson became involved in co-ordinating art development workshops in his local area, working with different ages, needs and ability; using a variety of media, digital imaging, animation (and most recently virtual environment design). Several explored participants' relationship to local environment, with politic or agenda-based issues: Including 'Wha's like us' - considering the inauguration of the new Scottish Parliament; Clackmannanshire's 'Our town story' project for presentation at the Millennium Dome, London; 'Home-grown Tales' designing a virtual garden in place of a real one at a country park in Middlesbrough; and most recently, a digital imaging workshop with teenagers for NGO Friends of the Earth, engaging with their local environment around the chemical and steel industry plants in Cleveland.

Inter-punctuating this personal and conceptual development, Paterson partook in a 1 year MSc study programme, which introduced theoretical and practical applications to graphical and virtual 3D computing applications. Unconventionally within the visually dominant programme of the course, due to contact with the LISTEN project, poetry performance events, and ambition to develop more sound-related artwork, Paterson aimed his Master project to engage with spacio-temporal authoring problems encountered within audio-augmented environments:

"Interactive narrative study reveals that the user creates their own individual narrative as a result of their movement through the space, accumulating fragments of narrative to create meaning. Such a process suggests a parallel to the actions of the archaeologist: charting and gathering items of interest from an excavation, to create an interpretation of history or agency at the site. This premise was applied to authoring a soundscape in a virtual environment, whereby the author creates a database of narrative fragments and clues, spread over different temporal phases and spatial locations, for the user to find in a virtual environment. As a solution to the problem of recording and managing complex spacio-temporal relationships, the archaeological record was identified as a useful metaphor. If treated as a state of transference and modification, rather than an empirical and static record, it could represent a structure of narrative potential." [Paters01].

The research proposal presented in this paper is motivated by the aim, firstly, to pull together previously disparate aspects of artistic and critical engagement with learned modes of activity in computer science, and recent technological development. Secondly, following prototype mobile-system development, guided by non-immersive virtual environments, the proposal endeavours to translate the concept of stratigraphical layering (spatial/ temporal) of media to outdoor space and landscape - natural or man-made.

In addition, this author believes that the inclusion of art development practices and perspectives would offer an alternative and different approach to the creative-push of new technology and media development. Although the best socially-aware computing research aims with a person-centred agenda, application is rarely combined with the appreciation that new media and imagination has to be nurtured and stimulated to achieve its optimistic ambitions.

<claim/hypothesis>

Linked with location-based services, people who possess MMS devices can develop and cultivate new relationships with their everyday places. Mobile media capture, whether image or voice record, has the capability to promote a 'haiku-esque' spontaneity to digital media. An underlying question is how much real physical place and location will be an influence, seeping into the digital augmented content? Further, what moulding factors may shape its construction, perception and interpretation?

McLuhan described the shift within the arts and media, away from a visual world of perception to one which has become an acoustic organisation of experience, encompassing and acknowledging a "space-time landscape of many times, given as a single experience" [McLuh70]. How may individuals, collectives, and communities use this 'acoustic' space of augmented media to develop a personal understanding or relationship with a location? In reference to the symbolic poets, such as Rimbaud: *an interior landscape of the mind*? Maybe digital haiku posted on the move? Or a forum for statement, expression, desire and need? What would be the implications of context and overview (of data) for the interpretation of space? Further, how will economical and political factors influence the ability and usage of such a facility?

For example: auditory components (sound samples, spoken voice fragments) 'posted or deposited' by teenagers in the area of a pedestrianised shopping area - previously un-solicited interpretations within the realm of town planning or landscape design - encourage the expression of alternative perspectives on the usage of the real space. A spatial soundscape, consisting of fragments of story, news, personal tagging, and memories - all that personalises and reclaims from the visually dominant record of the place – opens debate *only* among owners of a MMS mobile handset, within a certain context filter.

It should be argued that there has never been such an opportunity for the 'mass-market' (substitute for *public*) to engage and produce the above media forms, and augment it within (their own) public space using location-aware systems. Projects such as Headmap [Headmp01] are addressing the social implications of location-aware mobile devices, raising awareness of historical precedents of thought and practice, and considering what may learned, and taken forward with the new technology. Critical strategies to engage with place, such as those conceived by the International Situationist Movement [Debord56], suddenly seem to be within a grasp of application. Meanwhile from the opposite approach, (rhythm) analysis of city space [Lefebv96], personal classification of space [Perec97], and interpretations of meaning in landscape within

archaeological practice, e.g. [Tilley94,96], suggest a conceptual framework to assist understanding and interpretation of 'media deposits' over periods of time in localised geographical areas.

<goals>

The objectives of this research plan are focused as an artist-led project. The author understands this to mean the elaboration of new technology and their cultural possibility for commentary, creativity and art practice. Free from demands of the market it is possible to develop and extend new technology applications in ways that may seem unanticipated, have been abandoned as options due to un-profitability, or are outside of established research priorities. Of course also, the artist aims to develop technology with the ambition to facilitate the creation of a new medium to work with. Further, previous experience of co-ordinating art development workshops, using digital processes, has developed a belief that such a practice pushes the artist, and usage of software, in unplanned directions and promotes real agendas and community dialogue beyond the usual frame of artistic activity.

Hence it is the goal of this proposal to focus all research activity towards such an art development process. A series of workshops will be instigated to explore the different media potential of MMS-enabled mobile phones. All will focus upon person-place | place-person interaction, rather than person-to-person usage. These will lobby for the poetic and creative opportunities of MMS - relating narrative, tragedy, play, politic, memory and intimacy - if augmented to location, land/urban-scape and place. They would aim not only to support the merits of audio-focused messaging for location-context usage, but also to question the push of the visual (communication) sense by the mobile technology industry.

<methodology>

There are three distinct activities, approximately guided by the forthcoming order, that will form the project and constitutes as a methodology:

- * Investigate theoretical discourses of 'place', including archaeological, social, architectural, political, environmental psychology, and media philosophy, to seek suitable approaches for design, content, and analysis of workshop proposals within practice. A framework of underlying concepts and themes relevant to mobile augmented places will be discerned to guide the following stages.
- * Utilise a non-immersive virtual environment system, such as Unreal™ Engine, as a casual intermediate stage [Paters01], to continue to develop spacio-temporal data management approaches and explore workshop content and themes.
- * Design a prototype mobile system, including a computer/mobile web interface, in conjunction with other parties, for both personal and social content contribution and retrieval. At time of writing this may involve use of SMIL and Java technologies.

* Develop a series of public art-development workshops, which would aim to cultivate creative and imaginative usage of the forthcoming mobile technologies. The workshops will focus upon different media usage and interpretation, for example sound and voice 'deposits' to create soundscapes. Role models for community art engagement with locality and place in more traditional media are Common Ground's 'Parish Map' project [Cliffo96], and the Cleveland Arts poetry/art book publication 'A Fortnight in Seaton Carew' [Beagri01] to name but one workshop/product from Teesside.

<interpretation/evaluation >

It is not at first obvious what evidence, and hence evaluation, may define or quantify in the terms of either art products produced, or user experience. Art development workshops often do not yield digital artworks which may be critiqued academically to the level expected of artists, while they do not aim to satisfy the need of problem-solving which often drives common design objectives. It is true, with the aim of raising awareness and confidence in participating within a creative process, feedback, via usability forums with workshop participants, about whether the system facilitates such (creativity, potential) and the workshop themes, would be beneficial; in particular those which suggest to 'nurture' the medium and offer 'continuity'. Will people continue use such technology to make their own personal or social media places? (It was, even to the major mobile developers, a major surprise to witness the popularity of SMS 'texting' through an un-meditated user-led practice). A valid question is: Can the technology sustain the paradox of promoting place and locality, while facilitating mobility?

Regardless, assessment of the 'augmented places' evolving from the workshops, of course, will act as evidential material of validity to the last question, in conjunction with core approaches valued within the theoretical discourse. Also, it would be of interest, although not as key evaluation, to consider similar examples of technology 'adaptivity' from past communication systems, offering insights into how people-place | place-people media exchange may develop in the future.

<supervision and research community>

The author believes that such a proposal fits within the conceptual framework and research development ambitions of the MediaLab, UIAH for the following reasons: Firstly, it follows the core philosophy that "media technology is considered from a user or human-centred point of view utilising a cultural and socially oriented approach". This can be justified not only by the conceptual motivation of the proposal, but also the desired resultant work, i.e. public art development workshops. Secondly, the proposal's aims fall within the grounds of a research programme at MediaLab, namely ARKI, and (would benefit from) Diaz's activity in the 'Through the eye's of media: Illuminating History' project. In the ARKI case: "Understanding the consequences and desirability of an open digital dimension (with tools for collaboration, access, citizenship, rights, etc)" [Kommon01] and interest in the future '4th generation' mobile network environment, i.e. patterns and services. The 'Illuminating History' research potentially can offer insight into how combinations of media

can be overviewed for interpretation and understanding of a site or location, involving human agency. In the similar respect that this author's research, inspired by archaeology [Paters01], offered reversed perspectives of spacio-temporal aspects for VR data management, a claim of this proposal is that archaeological interpretations may assist understanding of augmented media deposits, over time, in a certain localised place.

Regarding the choice of location for this proposal, it seems self-evident that with Helsinki being renowned for the development of mobile communications and theory, it will be one of the first, if not leading, European country to establish the MMS system for mainstream usage. Of course this sets the scene for the uptake or usefulness in public engagement, practically and creatively, though art development workshops. With a wider perspective, linkage to relevant (Finnish) national and international networks would only strengthen the proposal's foundation: Of particular interest is the HULME group at the Swedish Institute of Computing Science. It would also be a useful position to strengthen established links with IMK Fraunhofer, Germany, (coordinator of the LISTEN project) and the Literature Development team at Cleveland Arts, who offer a wealth of experience developing media/literature workshops with relevance to 'place' in Teesside, NE England [Beagri01].

In consideration of supervision, it would be desirable to approach artist and Assistant Professor of Visual Art at Baltimore University, Teri Rueb [<http://research.umbc.edu/~rueb/>] as an off-site supervisor. Her art/technology projects follow similar ambitions and motivations to this applicant, and a warm communication link has already been established. In addition, the second supervisor that attracts is MediaLab's Lily Diaz, due to her background and current research in anthropological and archaeological approaches to new media.

<funding plan>

At present this applicant has applied to the Leverhulme Trust (Study Abroad Scholarship 2002, www.leverhulme.org/sas.html) to support 24 months of research, which is the most suitable of the UK-based research awards. Notification will be made at the end of April 2002 by the latest. If this application is successful, following the second year a Bi-lateral Scholarship will be sought from the CIMO organisation, so that a full 36 months are financially supported to cover the PhD time period.

If the Leverhulme award is unsuccessful, alternative-funding options will be readdressed, although it is likely that CIMO funding will still be sought for the final year of research study, to cover the thesis-writing period. Options available may lie elsewhere in European research funding, Finnish-based Scholarships, Industry sponsorship, or part-time employment.

<schedule and credit studies>

The schedule of study and research will follow the flow of the methodology, in approximation according to full-time financial support:

Winter 2002 – Summer 2003

- * Background and general research studies:

- General research credits (UIAH);
 - New media studies (Medialab, UIAH);
 - Theories of 'place' (Dept. of Arts, Helsinki University);

- * Casual development of virtual environment studies for interaction using Unreal™ game engine.

- * Supplement technology study:

- Mobile computing studies (Dept. of Computing Science, Helsinki University of Technology);

- * Seek partner for second phase of development: prototype system.

Winter 2003 – Summer 2004

- * Development of prototype location-aware MMS system. Work in conjunction with Helsinki-based mobile small business company, mobile technology research centre (e.g. Nokia), or academic partner with relevant research (e.g. SICS, Sweden).

- * Supplement technology study:

- Mobile computing studies (Dept. of Computing Science, Helsinki University of Technology);

- * Start main thesis writing.

- * Resolving workshop ideas and process in conjunction with prototype development.

Winter 2004 – Summer 2005

- * Continuation of workshop concepts and trial content production until spring.

- * Seek sponsor for workshop handsets and other relevant equipment.

- * Co-ordinate a series of public art development workshops with art students and variety of community groups, primarily in Helsinki.

- * Completion of thesis following workshops analysis.

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